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ABSTRACT

A study analyzed word recognition instruction in four first-grade classrooms to begin to identify the instructional practices that best foster learning to read words for particular profiles of children. The study was based on the question of which, and how many, word-recognition strategies should be taught to first-grade children. Subjects were part of four demographically similar classrooms which were observed for a year. In each classroom, students were organized into reading groups of varying abilities. Instructional practice varied widely across these classrooms; phonics and phonemic awareness activities were more common in Classrooms 2 and 4, and while children in Classrooms 2, 3, and 4 were on average reading at or above their grade level by the end of the year, the only low group children who were reading at grade level were those in Classrooms 2 and 4. Findings suggest: (1) differential instruction may be helpful in first grade; (2) children who enter first grade with low literacy benefit from early exposure to phonics, moving later toward the increased vocabulary and text discussion that serves their higher range peers well; and (3) a structured phonics curriculum that includes both onsets and rimes and also sounding and blending phonemes within rimes appears to be very effective. Contains 49 references, 16 tables, and 4 figures. An appendix contains examples of classroom dialogs. (EF)

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Learning to Read Words
Linguistic Units and Strategies

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Learning to Read Words: Linguistic Units and Strategies

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CIERA Inquiry 1: Readers and Texts
How does reading instruction work in the complexity of real classrooms? What instructional practices help children who come to reading with low levels of phonological awareness and alphabet knowledge learn to read words?

The question of which, and how many, word-recognition strategies should be taught to first-grade children has long perplexed practitioners. In this study, Juel and Minden-Cupp analyze word recognition instruction in four first-grade classrooms to begin to identify the instructional practices that best foster learning to read words for particular profiles of children.

Juel and Minden-Cupp observed four demographically similar classrooms over a period of a year. In each classroom, students were organized into reading groups of varying abilities. Instructional practice varied widely across these classrooms; phonics and phonemic awareness activities, for example, were more common in Classrooms 2 and 4 than in the other two. And while children in Classrooms 2, 3, and 4 were on average reading at or above their grade level by the end of the year, the only low group children who were reading at grade level were those in Classrooms 2 and 4.

Their findings suggest that differential instruction may be helpful in first grade; that children who enter first grade with low literacy benefit from early exposure to phonics, moving later toward the increased vocabulary and text discussion that serves their higher range peers well; and that a structured phonics curriculum that includes both onsets and rimes *and* sounding and blending phonemes within rimes appears to be very effective.

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Learning to Read Words: Linguistic Units and Strategies

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In preparing the grant proposal for the Center for the Improvement of Early Reading Achievement (CIERA), we asked teachers and administrators what research questions they most needed answered in order to improve primary-grade reading instruction. They raised more questions about how to teach children to read words than any other area in early reading. They expressed concern over which, and how many, strategies for word recognition teachers should model for first grade children. Should teachers, for example, model either how to "sound out" unknown words or how to make an analogy to a key word on a word wall? Should teachers focus on what makes sense? Should they model some combination of these (and other) strategies? Or—and under what conditions—should they simply tell a child an unknown word? Should they focus on the visual array of letters by spelling the word? Whatever strategies were or were not emphasized, they wanted to know which unit in the text or word should be the main focus. Should they focus on the meaning of the text to puzzle out an unknown word? Should they focus on the whole word (e.g., "stand"), little words in big ones (e.g., the "and" in "stand"), the onset and rime (e.g., "st" and "and"), or individual letter-sounds in words (e.g., /s/, /t/, /a/, /n/, /d/)? They wanted answers to the nitty-gritty questions involved in word recognition instruction.

While practitioners raised more questions about how to teach word recognition than other areas in reading instruction, they expressed concern about the amount of time spent on word recognition in their total language arts programs. They were very concerned about the development of both reading and writing, and the development of rich vocabularies and world knowledge with which to comprehend decoded texts.

Our approach to the above questions and issues was to examine how reading instruction worked in the complexity of real classrooms. Although there were key elements of instruction we wanted to observe, we did not want to ignore the context in which this instruction occurred. We reasoned that certain instructional procedures might be more effective if they were both delivered in particular ways and to specific groups of children. Onset and

rime instruction, for example, might be most effective for children with some decoding skill and some degree of phonological, awareness while sequential letter-by-letter decoding might be more effective for children with less early literacy knowledge (Bruck & Treiman, 1992; Ehri & Robbins 1992; Vandervelden & Siegel, 1995). Further, the form of instruction might alter its effectiveness. That is, whether instruction was delivered to large or small instructional groups, the character of those groups, the types of materials, and the form of interactions—among other factors—were all likely to influence the effectiveness of particular types of instruction. We wanted to closely examine the interactions of such factors, and allow room to study unanticipated classroom characteristics that seemed to affect the success of word recognition instruction.

The current study was a microanalysis of word recognition instruction in four first-grade classrooms. We considered both the form of word recognition instruction (e.g., whether it occurred through sorting words into patterns or through writing) and how that instruction was situated in the broader picture of language arts. We studied the linguistic units of words (e.g., syllables, onset and rime, phonemes) that were the focus of instruction as well as the strategies the teacher modeled for children to use to identify unknown words. We also considered how word recognition instruction was balanced with other aspects of language arts.

In sum, in the current study we examined whether specific forms of instruction might differentially affect students with varying levels of phonological awareness, alphabet knowledge, and other early literacy foundations. Our goal was to begin to identify specific instructional practices that appear to best foster learning to read words for particular profiles of children.

Background

The sheer volume of words that children are expected to read quickly and accurately is daunting. According to Carroll, Davies, and Richman (1971) and Adams (1990), if children successfully negotiate all the texts normally encountered by the end of third grade, they are expected to recognize and know well over 80,000 different words.

A child is quickly faced with an orthographic avalanche of printed words. From the start, children will be expected to read words they have never before seen in print. Only a few thousand words usually receive direct instruction in the primary grades. It would be impossible to directly teach children all the words they will encounter in print. It is also impossible to directly teach children all the letter-sound correspondences which they will need to be able to "sound out" novel words. Even the most comprehensive phonics programs rarely provide direct instruction for more than about 90 phonics "rules." Yet, over 500 different spelling-sound "rules" are needed to read (Gough & Juel, 1990; Juel, 1994).

Further, it is questionable that what is taught in phonics are the actual units used by the skilled reader. The rules of phonics, at least in most instructional programs currently in use, are explicit, few in number, and slow in applica-

tion. The identification of spelling-sound patterns by skilled readers, on the other hand, is implicit, requires considerable orthographic knowledge, and works very fast. It is neither clear whether the *units* of phonics instruction (e.g., individual letters or letter pairs) or the basic *processes* assumed in phonics instruction (i.e., applying rules to letter-sounds and blending these sounds together or decoding by analogy), are involved in skilled word recognition (Gough, Juel, & Griffith, 1992).

While traditional phonics instruction may not reflect the *actual* units and processes used in word recognition by the skilled reader, it may point the child in a useful direction. Phonics instruction may prompt a child to look for the relationship between the the letters in a printed word and the sounds she utters as she says the word. Part of the unending controversy surrounding phonics instruction may have to do with the fact that it isn't perfect; there may be better ways—or multiple ways— to help children link letters and sounds.

Phonics instruction may also promote awareness of words as sequences of sounds (i.e., phonemic awareness, phonological sensitivity). However, other forms of instruction such as invented spelling or "writing for sounds" (i.e., as a word is slowly segmented and articulated by a teacher the child writes the letter-sounds she perceives) might also promote both phonological awareness and letter-sound knowledge (Dahl, Scharer, Lawson, & Grogan, 1999). Awareness of the internal phonological structure of words is necessary in learning to read an alphabetic script like printed English. It is an awareness that is more explicit than is ever demanded in listening to and responding to speech (Liberman & Shankweiler, 1985). It is an awareness that is not readily acquired by most children. So what may be most effective about traditional phonics instruction or activities like "writing for sounds" may not be the actual letter-sound rules that are taught or employed at a given time, but the fact that while the child attempts to connect phonemes to letters, she becomes aware of spoken words as sequences of somewhat separable speech units (e.g., the /k/ in "cat"). Armed with this awareness, a child can then go on to induce for herself the multitude of spelling-sound correspondences that are actually required to read.

Once a child can read enough words to independently enter the world of books, additional words are learned as a consequence of seeing them several times in print (Reitsma, 1990; Share, 1995). Thus, the critical question may be how teachers can most efficiently help children gain enough skill to successfully enter the world of print so that, in a sense, they can then read enough to become their own teachers.

Linguistic Units

Words are composed of syllables. Most syllables are composed of initial consonants or consonant clusters called *onsets* (e.g., the /k/ in "cat," the /ch/ in "chat," or the "spl" in "splat") and the vowel and what follows it- the word unit called *rimes* (e.g., the "at" in "cat" or the "eat" in "cheat"; Pinker, 1994). Onsets and rimes are themselves composed of sound units called *phonemes* (e.g., "cat" consists of three phonemes, /k/ /a/ /t/, "splat" consists of five phonemes and "cheat" consists of three phonemes). Learning to read and

write involves attending to these sound units and connecting them to spelling patterns (e.g., perceiving the "at" in "cat" and knowing it is spelled "at", or that "eat" is spelled "eat" in "cheat" but "ete" in "Pete"). Learning to read and write words involves perceiving the sound units in spoken words *and* knowing which spelling patterns are linked to them in which words.

There is a developmental progression in how sound units in spoken words become consciously accessible to young children (Goswami, 1995; Treiman, 1992). At about age four, many children can perceive, segment, and manipulate the rather distinctive syllable units in words. At about ages four to five, onsets and rimes become transparent—which is one reason that, at this age, children seem fond of rhyming games, poems, chants, and even manipulations of linguistic units in the creation of new "languages" such as Pig Latin. But awareness of the individual phonemes within rime units often develops only with reading instruction (Perfetti, Beck, Bell, & Hughes, 1987). This is because phonemes are particularly hard to perceive in spoken words, since they are abstract. That is, as we say a word, we begin saying the upcoming phoneme as we are still articulating the one that came before it. So, in "cat" we begin to say the /a/ as we are finishing up the /k/. Thus, it is difficult to pull these units apart and when teachers try to do so they end up saying something like the letter "k" makes a "kuh" sound—but, of course, there is no "kuh" in "cat."

Since phonemes are difficult to untangle in words, there has been debate over whether initial reading instruction should emphasize them. It has been proposed that initial reading instruction should mirror the accessibility of linguistic units. Thus, after children perceive the fairly accessible syllable units, emphasis should turn to onsets and rimes. In support of this argument is the utility of rime units in reading. Thirty-seven rimes (e.g., *at, ack, ap, ash, eat, op, ing*) appear in over 500 different words which children commonly see in the early grades (Adams, 1990; Wylie & Durrell, 1970). It has been shown that children can make analogies from rime units to read and write new words (Goswami, 1995; Goswami & Bryant, 1992; Goswami & Mead, 1992; Treiman, 1992). That is, once a rime like "at" is known, students can use their knowledge of onsets and the "at" rime to write or read a never-before-seen word, perhaps, "sat" or "splat."

Rimes are not only more psychologically accessible to children than are their individual phonemes, but they are more predictable in their spellings than are smaller linguistic units. A problem in traditional phonics programs, for example, can be created by trying to teach rules about how individual letters map to phonemes. While rules at the phoneme level work fairly well for consonants, they do not work well for the vowels in English. In English, it is very difficult to know what sound a vowel will represent without a consideration of subsequent letters. That is, within a rime unit such as "at" or "ad" or "ay" or "ate", the vowel is fairly predictable; but, "a" on its own is not. Most phonic rules involving vowels are disturbingly short on accuracy (e.g., the rule "when there are two vowels together, the first one is long and the second one is silent" is true only 45% of the time; Clymer, 1963/1996). Within common rimes, however, there are very stable pronunciation patterns (Adams, 1990; Stahl, 1992).

Although some studies (Goswami 1995; Treiman, 1992) support a heavy dose of rimes in early reading instruction, other research (Bruck & Treiman, 1992; Ehri & Robbins, 1992; Foorman, Francis, Fletcher, Schatschneider, &

Mehta (1998); Gaskins, Ehri, Cress, O'Hara, & Donnelly 1996/1997; Vandervelden & Siegel, 1995) suggests that rimes may not be so helpful. Some children may need to analyze words at the phoneme level *before* they can successfully make analogies involving rimes. Certainly they need to delete initial consonants to segment the rime. And, there is evidence that consonants in spoken English are more salient than vowels, which translates into children first attempting to write and read words by depicting or relying on their consonant sounds (e.g., writing "cat" as "kt" or identifying "cat" in print by knowledge of the first and final consonants; Bruck & Treiman, 1992; Henderson, 1981). Thus, the self-generative nature of rime units, such as being able to decode "sat" because the "at" rime has already been learned in "cat," may be less than robust for very beginning readers (Gaskins et al., 1996/1997). Further, Foorman et al. (1998) provide evidence that starting at the phoneme level may, in the end, provide the best results. Although a rime like "at" is easier to perceive than its constituent phonemes, especially the vowel, working towards the phoneme from the start may be more productive in the long run. On the other hand, once some consonant and vowel knowledge is secured, knowledge of rimes may be exactly what helps children chunk and decode unknown words (Bruck & Treiman, 1992). The issue of the best instructional unit, and for which children, is far from complete.

Strategies

While word-level instruction can differ on what linguistic units receive the focus of attention, it can also differ on the *strategies* with which children are told to approach these units in unknown printed words. An instructional strategy is what the teacher instructs the child to do when faced with a word that is not instantly recognized. The teacher may provide a menu of strategies ranging from using the contextual cues provided by illustrations to sequentially sounding out and blending individual letter-sounds.

Four basic clusters of strategies have been advocated by various researchers and practitioners. While no approach is mutually exclusive, there are shifts in emphasis which focus a child to look for clues in different places. Admittedly a brief literature review can not do justice to any of the approaches, but an overall sketch will be provided here.

First strategy: Traditional phonics approach

In this approach, the unit is generally the phoneme and the strategy is to "sound and blend." Here is an example of what a teacher using this approach might find in a teacher's guide:

> "For the word *bat*, write each spelling, touch it, and have the children say each sound. Blend the sounds successively in the following manner: After writing and sounding /h/ /a/ (*ba*), make the blending motion under the word and have the children blend *bat*." (Adams, Bereiter, Hirshberg, Anderson, & Bernier, 1995, p. 127)

Of course, such instruction would include other exemplars, writing, and the reading of text such as "Matt has a tan hat" (p. 127).

Second strategy: Identifying unknown words with analogy to known words

In this approach, children are taught key words which contain common spelling patterns. These key words are frequently printed on cards and placed on the classroom word wall. A child is taught to break an unknown word into its component onsets and rimes and to search the word wall for known words with the same onset or rime. If "hat" was an unknown word, the child might proceed by noticing the "at," finding the word "cat" on the word wall, and saying, "If I know 'cat' then I know 'hat.'" (Gaskins et al., 1988). It has recently been suggested, however, that to improve this approach the key word needs to be scrutinized more carefully when it is initially introduced by segmenting it into its component phonemes (Gaskins et al., 1996/1997).

Third strategy: Emphasize the meaning level of the text

In this approach, an emphasis is placed on continual self-monitoring for meaning as one reads. There is an emphasis on four types of cues—any two of which can be cross-checked to confirm whether one's hypothesis about an unknown word is correct. Clay (1989) suggests these four cue sources:

1. Sense, Meaning: *Does it make sense?*
2. Visual Cues: *Does that look right?*
3. Letters/Sound: *What would you expect to see?*
4. Structure, Grammar: *Can we say it that way?*

So, if a child were reading about a bear wearing a funny hat, and stumbled over 'hat,' the child might be encouraged to ask what makes sense from looking at the illustration. If the child suggests, "hat", then a cross-check might be made by looking to see that the unknown word does indeed start with the letter "h".

Fourth strategy: The self-teaching hypothesis

In the self-teaching hypothesis proposed by Share (1995) and further amplified by Share and Stanovich (1995) and Torgesen and Hecht (1996), children basically learn to read by developing phonological awareness and then having a rich exposure to words. The driving idea behind this approach is that much of word learning is word-specific: "... the self-teaching hypothesis argues that the process of word recognition will depend primarily on the frequency to which an individual child has been exposed to a particular word together, of course, with the nature and success of item identification" (Share & Stanovich, 1995, p. 18). From this perspective, commonly occurring words are recognized without phonological recoding on the basis of being well-rehearsed visual patterns. In fact, there is some evidence that relatively few exposures to the same word allow its subsequent identification (Reitsma, 1990).

The problem, of course, is that most words are not commonly seen. Primary-grade children are hit with an avalanche of printed words. While some words are seen a lot, the most meaningful words (the content words) are not. After encountering, for example, "hen" and "haystack" in *Rosie's Walk* (Hutchins, 1968), it will be miles of print before children again encounter "hen", let alone "haystack." But note that what they will soon see again are the onsets (i.e., "h", "st"), the rimes (i.e., "en", "ay," and "ack"), and the individual phonemes (i.e., /h/, /a/). For the majority of words, the self-teaching hypothesis suggests that if *and only if* a child has phonological sensitivity—that is, can perceive the sequence of sound units within a word—can these

linguistic units potentially be linked to their spellings. In addition, to make this link, a child must look carefully at the word. If a child, for example, skips over the word "hen" in the text, identifying it by looking at the illustration, then she loses the opportunity to learn about its spelling patterns. She loses information that might be useful in furthering her self-teaching mechanism.

The issue of sequence of instruction of linguistic units and strategies is further complicated by what particular insights and current knowledge about print a child currently possesses. Individual variation in the degree to which children can perceive phonemes may further complicate the picture (Torgesen & Davis, 1996). Given the range of competing hypotheses about both the units and the strategies employed during reading acquisition, we decided to undertake a systematic yearlong examination of both. We were especially interested in the word recognition growth of children placed in the low reading groups, as these children were the most dependent on classroom instruction to develop basic reading skill.

Method

We began by identifying four first-grade classrooms in two schools in a city in the southeastern United States. The two schools have similar demographics. They are located in nearby neighborhoods. In each school, approximately 70% percent of the children qualify for subsidized lunch, 60% are African-American, 36% are Caucasian, and 4% are from other ethnic groups.

Each first-grade classroom had no more than 18 children. Each of the classroom teachers was a female Caucasian who had more than 10 years of teaching experience (at least 5 of which were at the current school). They were each considered a very good teacher by the school principals. We were interested in examining which activities, reading materials, strategies, and units of instruction seemed to promote word learning in first grade for children with different incoming literacy profiles.

Classroom Observations

We conducted weekly classroom observations (a minimum of one hour of language arts was observed). We used laptop computers to write running narratives of what was going on during language arts. We started the year by developing a coding sheet that would focus these observations on four primary areas: (a) activities, (b) materials, (c) strategies, and (d) linguistic units. Activities included the major focus of instruction or activity (e.g., a read aloud by the teacher, spelling words, discussion of the meaning of a text, oral vocabulary development, oral phonemic awareness, phonics). Materials included the major materials used in the activities (e.g., a poem on a chart, word cards, word wall, personal journals, trade books, basals). Strategies included what children were told to do or what the teacher modeled doing when encountering an unknown word (e.g., teacher models sounding and

blending onset and rime, teacher models sounding and blending phonemes, teacher models use of picture clues and known letter sounds, child told to reread, peers asked to provide clues, child asked if the suggested word makes sense). As we coded and discussed the running narratives, we added items. One teacher, for example, frequently gave children teacher-made little books containing the poem they had read on a chart in a group lesson. So, a code for "child copies of poems in a teacher- made little book" was added.

While our focus was on the above four areas, we recorded whether instruction was being conducted in small groups or with the whole class. Each of the four classrooms included time for three reading groups during language arts. These three groups were formed based on the teacher's assessments of children's reading skills. Our observations, and subsequent coding of the observations, were based on the individual experiences of each child. For example, if Tish was in the "low" reading group, then the forms of instruction and interaction in that group were what she was tallied as having experienced, in addition to whole-class experiences. We concentrated our coding on what went on in individual reading groups when the teacher was instructing them. Thus, we focused on the experiences Tish had when she was in a reading group with the teacher present, not on what she was doing at her seat when the teacher was working with another reading group.

The procedure we employed was to write the running narrative while in the classroom. We later coded the narrative by listing the four (if that many) primary activities during language arts that each child experienced (e.g., choral reading a little book, listening to a teacher read a trade book aloud, writing in a journal, pair reading of a basal). Similarly, we listed the four (if that many) major reading materials a child experienced during language arts (e.g., trade books, Big Books, phonic worksheets), the major strategies to word identification that were experienced (e.g., use of context, use of initial consonant plus context), and the focal unit of this instruction (e.g., whole word, phonogram).

We initially intended to record the actual time children spent simply reading. This proved impossible for two reasons. First, children often shared a book (sometimes between a pair, sometimes among a group), making it very hard to determine whose eyes were actually falling on the printed words. Second, even when each child had a copy of the text (e.g., in round robin reading), it was apparent that many children were not looking at the text.

Each observer was a reading specialist. During the first two months of the school year there were often two observers in the same classroom. After the observations the two observers coded their individual narratives into the top four activities, materials, strategies, and units that were observed in a particular reading group or during whole-class instruction. We discontinued having two observers in a classroom when they consistently achieved 94% interrater reliability—that is, until the same codes were applied 94% of the time. At the end of the year, all narratives were independently coded by two reading specialists. Interrater reliability was .97. Examples of observations and codes applied from each of the 4 classrooms appear in the Appendix. These examples were chosen because they are typical of the form of instruction in each classroom.

Reading Assessments

We assessed every child in the four first-grade classrooms in September, December, and May on the individually administered the Book Buddies Early Literacy Screening (BBELS—an early literacy screening procedure expanded from that used in Book Buddies; Johnston, Invernizzi, & Juel, 1998). This assessment includes two parts. Part 1 includes alphabet knowledge, sound-letter awareness, phonemic awareness, concept of word, and word recognition in isolation. Part 2 consists of oral reading and comprehension of increasingly difficult passages. Alpha reliability coefficients on each subtest are well within the acceptable range for school assessments, ranging from .78 to .91.

We also assessed every child on the word reading subtest of the Wide Range Achievement Test (WRAT; Wilkinson, 1994). We assessed children on reading the words on this subtest (not the letters) in September, December, and May. The test-retest reliability is .96.

In December and May, each child read five "decodable" words and five "sight" words that were specific to their reading groups. The purpose of this testing was to see if the children were learning what they had specifically been taught. The sight words had received specific direct instruction in the reading group as whole words (and they generally appeared on a class word wall). Typical sight words in December were is, the, and we for a low group; get, had,and put for a middle group; and there, some, and with for a high group. The decodable words contained elements which had been the object of direct instruction in the group (e.g., initial consonants, phonograms, short vowels). Typical decodable words in December were rat, pig, and ball for a low group; frog, that, and dig for a middle group; and flat, smell, and drop for a high group.

In addition to these word lists, we created two stories which had the same pictures but had different degrees of word difficulty (see Johnston et al., 1998, for an example of the form of these short stories). The first story contained words similar to those encountered in the low reading groups, while the second story contained words which were similar to those encountered in the high reading groups. The stories contained both decodable and sight words. If children had considerable difficulty with the first story, they were not asked to read the second story. Children's strategies for decoding both words on the word lists and the short stories were assessed in a think-aloud procedure.

Children were individually assessed on reading the words and asked to explain how they figured out how to pronounce each word (whether or not it was correctly pronounced). They were encouraged to make comments as they were actually attempting to decode a word. If a child, for example, said she recognized, tan because it had /t/ and an, it was considered a "sound and blend onset-rime" strategy. If a child, instead, demonstrated sounding and blending each phoneme, as in "/t//a//n/", it was considered a "sound and blend phonemes" strategy. If a child looked at the word wall for a match, it was considered a "word wall" strategy. If a child suggested it had to be a color word, and "tan" made sense, it was considered a meaning strategy. If the child said the first sound, /t/, and then tried to figure out what made

sense, it was considered a "first letter plus sense" strategy. And, if a child said, "It looks like...," it was considered a "visual" strategy.

Results

Classroom Instruction

As previously described, the four classrooms had similar demographics and each was organized into three reading groups, with approximately the same number of children per group. An analysis of variance (ANOVA) of September assessments on BBELS and the WRAT showed no significant differences on mean scores among the classrooms. In September, children in all four low reading groups could not identify all the letters of the alphabet and could print fewer of them, appeared to lack a solid concept of word, demonstrated little phonemic awareness or knowledge of letter-sounds, and could

Table 1: Percent Activities and Materials in Classroom 1, September–December

	Low Group	Middle Group	High Group
Reading text	38%	36%	32%
Individual reading	29%	21%	23%
Choral reading	21%	21%	15%
Round robin reading	29%	42%	39%
Free choice reading	14%	11%	15%
Rereading	7%	5%	8%
Reading materials:			
Basal	6%	14%	6%
Little books	23%	17%	18%
Trade books	12%	22%	29%
Board	53%	43%	47%
Child-made books	6%	4%	0
Writing text	17%	11%	15%
Individual text writing	50%	50%	50%
Journal	50%	50%	50%
Word wall sight words*	26%	19%	20%
Spelling words	11%	13%	13%
Phonics	0	3%	2%
Phonics worksheets	0	100%	100%
Phonemic awareness	3%	2%	1%
Rhyming	100%	100%	100%
Meaning of text discussion	0	6%	5%
Text grammar/punctuation	5%	10%	12%

*Whole-class activity with occasional group follow-up.

not read any words on the WRAT. Children in the middle groups generally knew most or all of the letters of the alphabet, demonstrated some phonemic awareness and some knowledge of letter sounds in their spelling, and could read a couple of words on the WRAT. Children in the high groups were all reading at least early first-grade materials, and some were fluent decoders of almost any late first- or early second-grade-level texts. Classroom 1 had two children in the high group who were especially advanced readers at the beginning of first grade.

The structure of each classroom in terms of overall number of children in the class and in each reading group was nearly identical. Smooth classroom management was observed in each classroom. The spread of "literacy profiles" of the children in each classroom was very similar. Yet, considerable variation was observed in instructional practices among the four classrooms. In fact, there was as much difference between the two classrooms at the same school as there was across schools.

Classroom 1

Classroom 1 was the most traditional of the classrooms. During both the fall and spring semesters, the class format for language arts was an opening whole-class activity using a word wall, followed by reading group instruction (Tables 1 & 2). The word wall was the dominant means of introducing words to the class. Its structure was always identical. The sequence was to spell the new word, clapping for each letter, and then to write each word three times and use one new word in a sentence (see Appendix). Approximately five new words were introduced each week. During reading group time, some of these words might be revisited.

In classroom 1, reading groups were frequently conducted in a round robin fashion, especially in the spring (Table 2). Similar to the other classrooms, there was a lack of reading materials that seemed to meet the needs of the very beginning reader. A basal text (available in all four classrooms) from 1986 was used more in this classroom than in the other three classrooms. Although this basal had more leveled text by vocabulary control than do many current literature-based basals, it was still considered too hard for the "low" groups. The school district had, in recent years, been adding commerical little books (i.e., commercial series of very short books with predictable or easily memorized text) to their classrooms. These books were considered easier than the basal for the children who knew little about letters or texts.

During the fall, Teacher 1 used little books and text she wrote on the board (usually containing word wall words) for the low group. The materials for her three reading groups were not that dissimilar in the fall, though the level of little books used differed among the groups (Table 1). The little books employed in the middle and high groups were less predictable and longer in length than those used in the low group. In the spring, each of the three reading groups read more from the basal than from other types of texts (Table 2). The format of the reading groups, such as a heavy use of round robin reading, was the same across the groups; only the level of what was read differed. Topics for writing assignments and time for individual journal writing were the same across the reading groups.

In Classroom 1, most direct word recognition instruction occurred during the opening language arts activity of the whole-class word wall exercise. This activity constituted about 20% of the language arts activities from Sep-

Table 2: Percent Activities and Materials in Classroom 1, January–May

	Low Group	Middle Group	High Group
Reading text	27%	24%	20%
Choral reading	17%	0	0
Round robin reading	83%	71%	100%
Rereading	0	29%	0
Reading materials:			
Basal	38%	55%	71%
Little books	25%	0	0
Trade books	0	0	29%
Board	37%	44%	0
Writing text	17%	13%	21%
Individual text writing	100%	100%	100%
Word wall sight words*	31%	20%	32%
Spelling words	17%	17%	21%
Phonics	4%	3%	0
Phonics worksheets	100%	100%	0
Phonemic awareness	0	7%	0
Rhyming	0	100%	0
Read aloud by teacher	4%	7%	5%
Meaning of text discussion	0	9%	0

*Whole-class activity with occasional group follow-up.

tember through May (Tables 1 & 2). In general, children in the class frequently focused on the sequential letters in a word by spelling the word both orally and in writing (see Appendix). The word wall was also consulted in reading groups. There was practically no phonics instruction; word recognition development was very tied to the basic word wall activity.

Table 3: Percent Units Used in Word Recognition Instruction and Strategies Provided Low Reading Group Children in Classroom 1

	Sep–Dec	Jan–May
Primary units		
Initial consonants	34%	8%
Phonograms	8%	0
Short vowels	0	8%
Long vowels	0	17%
Initial consonant blend	0	25%
Medial consonants	8%	0
Final consonant digraph	0	8%
Whole word	50%	34%
Primary strategies		
Child asked if it makes sense	13%	13%
Child asked to reread	22%	0
Child asked to spell word	20%	13%
Child given a phonic statement*	0	11%
Child told it is on word wall	11%	13%
Child told to predict what might be	11%	0
Teacher tells child the word	23%	50%

*A statement like, "There is a silent letter."

In Classroom 1, word recognition instruction in the low group was of the same form and duration as that in the middle and high reading groups. As described, it occurred primarily in the whole-class word wall activity. No more than 4% of the activities we saw involved phonics instruction, and these activities were solely with phonics worksheets (Tables 1 & 2). Likewise, there was very little phonemic awareness work, and what there was consisted of rhyming words (Tables 1 & 2). There was little attention paid to word units other than initial consonants and whole words (Table 3). The teacher was never observed modeling sounding and blending units within words. If a child came to an unknown word in a text, she was told to consider the meaning of the text, to predict, to reread, to spell the word, or to look on the word wall. Frequently the teacher simply told the child the word (Table 3).

Classroom 2

Classroom 2 was next door to Classroom 1. The two classrooms were very distinct, however. Children in Classroom 2 spent almost all their language arts time either in a reading group or in reading-group related assignments. The teacher in Classroom 2 made up for the relatively small number of

Table 4: Percent Activities and Materials in Classroom 2, September–December

	Low Group	Middle Group	High Group
Reading text	42%	39%	30%
Individual reading	50%	56%	0
Choral reading	30%	33%	33%
Round robin reading	20%	11%	67%
Reading materials:			
Poem on chart	40%	35%	0
Poem copied for child	20%	21%	0
Teacher-made chart	0	20%	0
Text copied for child	0	6%	33%
Basal	20%	0	0
Little books	0	6%	0
Magazines	20%	6%	20%
Trade books	0	6%	47%
Writing text	4%	4%	20%
Individual text writing	100%	100%	100%
Word wall sight words	9%	9%	10%
Phonics	26%	27%	20%
Sorting words by pattern	39%	20%	0
Writing for sounds	17%	40%	50%
Phonics worksheets	17%	20%	50%
Make word with letter cards	17%	0	0
Word families on chart	10%	20%	0
Phonemic awareness	11%	9%	10%
Sorting pictures by sound	75%	60%	0
Rhyming	25%	40%	100%
Letter identification/formation	4%	0	0
Meaning of text discussion	4%	0	0
Text grammar/punctuation	0	12%	10%

books for very beginning readers by creating many charts and individual little books. This practice was especially common during the fall semester for the low and middle reading groups. Typically, the teacher had printed a poem on a chart and after a reading group read and discussed the chart, each child was provided a copy of the poem in the form of a little book (Appendix; Tables 4 & 5). The poem might differ between the middle and low reading groups in response to the children's skill in word recognition. Even when the poems were the same across the two groups, the words singled out for discussion would be different, corresponding to the different word recognition skill needs. In contrast, during the fall, the high reading group mainly read from text (not poems) copied on a chart, magazines, or trade books (Table 4). In all three reading groups, the form of reading ranged from round robin reading to choral reading (where all children simultaneously pointed to words in text as they read the text aloud) to individual text reading (Tables 4 & 5).

Table 5: Percent Activities and Materials in Classroom 2, January–May

	Low Group	Middle Group	High Group
Reading text	32%	51%	64%
Individual reading	25%	29%	25%
Choral reading	25%	29%	33%
Round robin reading	50%	42%	42%
Reading materials:			
Poem on chart	0	12%	12%
Poem copied for child	0	0	0
Teacher-made chart	12%	18%	19%
Text copied for child	11%	0	0
Basal	11%	0	0
Little books	11%	29%	25%
Trade books	11%	12%	13%
Big Books	11%	12%	6%
Board	33%	17%	25%
Writing text	7%	6%	2%
Individual text writing	100%	100%	100%
Word wall sight words	7%	3%	4%
Spelling words	8%	3%	4%
Phonics	38%	19%	9%
Writing for sounds	20%	17%	0
Phonics worksheets	40%	33%	100%
Word families on chart	40%	50%	0
Meaning of text discussion	0	6%	9%
Vocabulary discussion	0	6%	4%
Text grammar/punctuation	7%	6%	4%

In Classroom 2, most direct word recognition instruction occurred during reading groups. All three reading groups received phonics instruction during the year (Tables 4 & 5). The use of poetry in the low and middle reading groups lent itself to a focus on onsets and rimes and making analogies to words with similar units. After reading the chart poem, the students often first choral read and then individually read a little book copy of it. Teacher 2 was fairly insistent that children finger point to words as they read text. After these readings, the children frequently read teacher-made charts with similar

rhyming words, sorted word cards on charts based on their rime unit, worked on worksheets to identify the rimes, and wrote words as they were slowly segmented into onsets and rime units by the teacher (a form of "writing for sound" activity; Tables 4 & 5). Phonics activities across the groups ranged from 20–38 % of the language activities (Tables 4 & 5).

Especially during the fall semester, Teacher 2 made considerable use of "hands-on" materials in phonemic awareness and phonics instruction. Children in the low and middle groups frequently sorted word cards into categories based on orthographic patterns or sorted picture cards on the basis of sounds.

During the fall, children in the low group in Classroom 2 were provided considerable modeling by their teacher about to how to chunk words into their component units (Table 6). They frequently made an analogy between a rime in a key word and lists of unknown words. In the spring, the teacher was especially insistent on combining what made sense in text with known "chunks" such as rime units. In general, the focal units were onsets and rimes, though other consonant units were also examined (Table 6).

Table 6: Percent Units Used in Word Recognition Instruction and Strategies Provided Low Reading Group Children in Classroom 2

	SEP–DEC	JAN–MAY
Primary units		
Initial consonants	45%	20%
Phonograms	20%	36%
Initial consonant blends	5%	5%
Final consonants	10%	0
Short vowels	0	13%
Initial consonant digraphs	10%	0
Long vowels	0	13%
Whole word	10%	13%
Primary strategies		
Teacher models and helps segment word into chunks*	23%	0
Teacher models combining what makes sense with known letter-sounds	0	16%
Finger pointing and other modeling of text by teacher	15%	12%
Child told to use first letter(s) and what makes sense	8%	0
Child told to sound and blend onset and rime (phonogram)	8%	12%
Child told to sound and blend letter-sounds	0	12%
Child asked if it makes sense	8%	0
Child asked to put finger under word	8%	0
Child told to "get mouth ready"	8%	0
Child reminded of word family	8%	12%
Child asked to reread	0	12%
Teacher says, "It rhymes with ___"	0	24%
Teacher tells child the word	14%	0

* Generally onset and rime (phonogram), but sometimes syllables or "little words" in "big" words.

Classroom 3

Classroom 3 was a lively place. Students were allowed more freedom to move around the room than in the other three classrooms. This was productive movement, with children going to pick out a book to read individually or with a buddy, going to the writing center to write, or moving to their reading group. The general format for language arts was to begin with a rela-

tively long morning message where various literacy skills were interwoven in writing the news from home, the schedule for the day, or text the teacher had written on the chalkboard. After the morning message, the children frequently were observed reading or writing individually or in pairs.

Classroom 3 was filled with more books than the other three classrooms, especially trade books. During the first semester, Teacher 3 found, as did the teachers in the other classrooms, a dearth of reading materials suitable for the beginning reader. Like Teacher 2, she made frequent use of poetry on charts, as well as other chart text (Table 7). During the spring, many more trade books were used across all reading groups (Table 8). Teacher 3 never used the basal reader.

There was considerably more modeling of writing (through the morning message) and individual text writing in Classroom 3 than in the other three classrooms (Tables 7 & 8). Children in the low group also engaged in several language-experience type writing activities (i.e, activities where their sentences were dictated to the teacher on a chart or on the board).

Table 7: Percent Activities and Materials in Classroom 3, September–December

	Low Group	Middle Group	High Group
Reading text	30%	30%	44%
Individual reading	20%	33%	43%
Choral reading	60%	56%	43%
Rereading	20%	11%	14%
Reading materials:			
Poem on chart	30%	13%	27%
Teacher-made chart	20%	5%	9%
Little books	10%	38%	27%
Trade books	10%	19%	10%
Big Books	10%	10%	0
Board	10%	10%	18%
Overhead	10%	5%	9%
Writing text	22%	14%	14%
Individual text writing	40%	0	0
Journal writing	10%	0	0
Morning message*	50%	100%	100%
Word wall sight words	6%	3%	7%
Spelling words	18%	3%	7%
Phonics	6%	10%	0
Writing for sounds	100%	100%	0
Peer coaching	6%	17%	7%
Concept of word	6%	3%	0
Read aloud by teacher	0	3%	7%
Meaning of text discussion	6%	14%	7%
Discussion	100%	50%	100%
Expressive reading	0	50%	0
Vocabulary discussion	0	3%	0
Text grammar/punctuation	0	0	7%

*Whole-class activity with occasional group follow-up.

We also observed more discussion of texts in Classroom 3 in the fall, especially in the middle reading group (Table 7), than we saw in the other three classrooms. In the spring, the amount of text discussion across reading groups was more than what occurred in Classrooms 1 and 2, but less than that in Classroom 4.

During reading groups, Teacher 3 relied on peer coaching to facilitate word recognition. Peer coaching involved other children in the group helping a child who was having difficulty recognizing a word. When a child in a reading group could not identify a word, other children in the group were encouraged to provide a clue (see Appendix). There were suggested clues which had been taught (e.g., reread, sound it out, see if it makes sense, look at the word wall), but the children were encouraged to provide any clues they thought would help. Peer coaching was unique to Classroom 3.

Table 8: Percent Activities and Materials in Classroom 3, January–May

	Low Group	Middle Group	High Group
Reading text	24%	29%	29%
Individual reading	37%	43%	60%
Choral reading	13%	33%	30%
Rereading	24%	8%	10%
Pair reading	13%	8%	0
Free reading	13%	8%	0
Reading materials:			
Poem on chart	6%	17%	7%
Teacher-made chart	11%	5%	7%
Little books	17%	34%	36%
Trade books	36%	22%	29%
Big Books	10%	5%	7%
Board	11%	5%	7%
Child-made book	9%	12%	7%
Writing text	21%	24%	14%
Individual text writing	33%	54%	57%
Journal writing	33%	27%	29%
Language experience	22%	9%	0
Morning message*	12%	10%	14%
Word wall sight words	3%	3%	3%
Spelling words	5%	3%	3%
Phonics	8%	6%	9%
Writing for sounds	0	50%	34%
Phonics worksheets	100%	50%	66%
Phonemic awareness	9%	0	0
Rhyming	100%	0	0
Peer coaching	3%	6%	6%
Read aloud by teacher	8%	7%	6%
Meaning of text discussion	11%	11%	14%
Discussion	100%	100%	100%
Vocabulary discussion	5%	8%	10%
Text grammar/punctuation	3%	3%	6%

* Whole-class activity with occasional group follow-up.

There was relatively little direct phonics instruction in Classroom 3 (Tables 7 & 8). What phonics there was came as it fell out of the trade books. In other words, there wasn't a preset phonics curriculum; rather, the teacher took advantage of a word in the morning message, a book, or a chart to highlight an orthographic pattern. This lack of a sequence of instruction can be seen in Table 9. Children in the low group were most exposed to initial consonants, long vowels, syllables, and whole words in the fall, though they were exposed to a sprinkling of almost every unit. In the spring, there was slightly more attention placed on initial consonants, but many orthographic units were commented upon. The lack of a sequence, or much time spent in direct word recognition, was purposeful. All children were expected to learn these skills in the context of reading and writing, which were dominant activities in this classroom.

Table 9: Percent Units Used in Word Recognition Instruction and Strategies Provided Low Reading Group Children in Classroom 3

	SEP–DEC	JAN–MAY
Primary units		
Initial consonants	18%	23%
Phonograms	0	8%
Final consonants	9%	8%
Short vowels	9%	15%
Long vowels	18%	8%
Medial consonants	0	8%
Syllable	18%	15%
Whole word	28%	15%
Primary strategies*		
Teacher models and helps segment word into chunks†	17%	14%
Finger pointing and other modeling of text by teacher	25%	4%
Child told to sound and blend onset and rime (phonogram)	0	9%
Child told to sound and blend letter-sounds	0	9%
Child asked if it makes sense	8%	10%
Child asked to put finger under word	8%	4%
Child told to "get mouth ready"	0	4%
Child reminded of word family	0	4%
Child asked to reread	10%	4%
Child asked to spell word	8%	0
Child told to feel sound in mouth	8%	4%
Child given a phonic statement‡	0	4%
Teacher says, "It rhymes with ___"	0	18%
Analogy to key word on word wall	8%	4%
Child told it is on word wall	8%	4%
Teacher tells child the word	0	4%

* Most of the strategies not designated as "teacher" given were provided by other children in the context of peer coaching.

† Generally onset and rime (phonogram), but sometimes syllables or "little words" in "big" words.

‡ A statement like, "There is a silent letter."

Classroom 4

Teacher 4 was clearly the most phonics-oriented of the four teachers. She was also the most adamant about the behavior of her students (see Appendix). Instruction, however, differed considerably between her reading groups (Tables 10 & 11). During the fall, 39% of the activities that the low group engaged in involved phonics, 11% involved phonemic awareness, and only 17% involved reading of text. In contrast, in the high groups, 42% of the activities involved the reading of text, 8% phonics, and 8% phonemic aware-

ness (Table 10). This differential instruction evened out more in the spring in terms of percentage of activities devoted to particular areas. Phonics instruction was virtually completed in February in the low groups; we observed about an equal amount of time spent reading text across the three reading groups, and considerable time in all three groups devoted to vocabulary development and discussion of texts (Table 11).

Table 10: Percent Activities and Materials in Classroom 4, September–December

	Low Group	Middle Group	High Group
Reading text	17%	26%	42%
Individual reading	33%	20%	20%
Choral reading	67%	60%	40%
Round robin reading	0	0	20%
Free choice reading	0	0	20%
Rereading	0	20%	0
Reading materials:			
Teacher-made chart	50%	17%	25%
Basal	25%	0	25%
Little books	25%	66%	25%
Magazines	0	0	25%
Board	0	17%	0
Writing text	0	0	8%
Individual text writing	0	0	100%
Word wall sight words	11%	11%	18%
Phonics	39%	33%	8%
Sorting words by pattern	66%	33%	0
Writing for sounds	17%	23%	98%
Phonics worksheets	17%	22%	0
Child chalkboard	0	22%	2%
Phonemic awareness	11%	11%	8%
Sorting pictures by sound	100%	100%	100%
Letter identification/formation	11%	14%	0
Meaning of text discussion	0	0	8%
Text grammar/punctuation	11%	5%	8%

During the fall, the low groups most frequently read text created on charts (as occurred in all the classrooms), and read from the 1986 basal used in Classrooms 1 and 2, as well as the little books used in all the classrooms (Table 10). Like Teacher 2, this teacher was especially insistent during the fall semester that children finger point to words as they read.

The middle reading group spent most of its time reading from little books (Table 10). The high group evenly split time reading from teacher-made charts, the basal, little books, and magazines (Table 10). From January through May, reading teacher-made charts dropped out as reading material in all three groups. The low group read from the basal, little books, and trade books (Table 11). The middle and high groups likewise read from the basal, little books, trade books, and also from Big Books.

Teacher 4 showed the most change in her instructional practices before and after December in each of her reading groups. After December, the children

in each group were considerably more involved in vocabulary and text discussions than they had been during the fall. These discussions were based both on text read aloud by the teacher and text read during reading groups (Tables 10 & 11).

Table 11: Percent Activities and Materials in Classroom 4, January–May

	Low Group	Middle Group	High Group
Reading text	25%	21%	25%
Individual reading	16%	0	40%
Choral reading	52%	25%	20%
Round robin reading	32%	75%	0
Free choice reading	0	0	20%
Pair reading	0	0	20%
Reading materials:			
Basal	33%	20%	43%
Little books	33%	20%	14%
Trade books	17%	40%	29%
Big Books	0	20%	14%
Writing text	0	0	10%
Individual text writing	0	0	100%
Word wall sight words	4%	5%	5%
Phonics	16%	10%	10%
Sorting words by pattern	50%	0	15%
Writing for sounds	25%	0	14%
Phonics worksheets	25%	50%	28%
Child chalkboard	0	50%	43%
Read aloud by teacher	13%	16%	15%
Vocabulary discussion	13%	16%	20%
Meaning of text discussion	21%	16%	10%
Text grammar/punctuation	8%	16%	5%

As stated, during the fall semester the low group engaged in many phonics activities. The phonics activities were very "hands-on". Seventeen percent of the phonics activities involved "writing for sounds", sometimes on phonics worksheets as in the Appendix. Sixty-six percent of the phonics activities involved sorting word cards into categories based on orthographic patterns (e.g., making columns of words which differed in their phonograms or short vowels; Table 10). Likewise, phonemic awareness activities always involved the hands-on process of sorting pictures by their component sounds (e.g., put all the initial /b/ pictures such as a "bear" and "bat" in one column and the initial /s/ pictures such as "sink" and "sun" in another column). There was a preset phonics curriculum in Classroom 4. At the beginning of the year, initial consonants were stressed. The children were encouraged to use the first letter(s) in an unknown word and what made sense to identify an unknown word in text. Rimes were quickly added and these phonograms received heavy emphasis, especially in word sorts (Table 12). During this time, the teacher modeled segmenting words into onset and rime chunks, and encouraged children to find these chunks in an unknown word (Table 12). At the same time, however, the rime unit was also broken down into its individual phonemes, especially during the "writing for sounds" activities

(see Appendix). As the year progressed, the teacher increasingly modeled and encouraged children to sound and blend individual letter-sounds to recognize a word (Table 12).

As mentioned earlier, direct phonics instruction in Classroom 4 was completed by the end of February. In January and February, phonics instruction focused on phonograms and short vowels. Often words with long vowel phonograms (e.g., "oat" as in "boat" or "float") were contrasted with words with short vowel phonograms (e.g., "at" in "bat" or "flat"). Short vowels also received much attention, especially when "writing for sounds." During this time, the teacher modeled—and expected children to combine—what made sense with known letter-sounds to identify an unknown word in text. She frequently asked a child to sound and blend the individual letter-sounds in a word and consider what made sense (Table 12).

Table 12: Percent Units Used in Word Recognition Instruction and Strategies Provided Low Reading Group Children in Classroom 4

	SEP–DEC	JAN–MAY*
Primary units		
Initial consonants	23%	0
Phonograms	44%	50%†
Initial consonant blends	11%	0
Final consonants	11%	0
Short vowels	11%	50%
Primary strategies		
Teacher models and helps segment word into chunks‡	18%	0
Teacher models and helps sound and blend letter-sounds	5%	0
Teacher models combining what makes sense with known letter-sounds	5%	30%
Child told to use first letter(s) and what makes sense	17%	0
Child told to sound and blend letter-sounds	11%	20%
Child asked if it makes sense	5%	20%
Child asked if it looks like the word	17%	10%
Child asked to spell word	11%	0
Child asked to put finger under word	11%	0
Child told to feel sound in mouth	0	10%
Teacher tells child the word	0	10%

* Direct "unit" instruction was completed by the end of February.

† Phonograms in the fall included many short vowels, such as "an," while the winter included many long vowel phonograms, such as "ain."

‡ Generally onset and rime (phonogram), but sometimes syllables or "little words" in "big" words.

Summary of the four classrooms

Table 13 highlights the similarities and differences among instructional activities in the four classrooms. The reading and writing of texts was the activity all reading groups engaged in most extensively, except those in Classroom 4. Throughout the school year, about 40% or more of the language arts activities in all reading groups, except those in Classroom 4, involved reading and writing text.

Phonics and phonemic awareness activities were much more common in Classrooms 2 and 4 than in Classrooms 1 and 3. From September through December, 3% of the activities in the low reading group in Classroom 1 involved phonics and, similarly, 6% of the activities in Classroom 3 involved phonics. In sharp contrast, during this same time, 50% of the activities in the

low reading group in Classroom 4 involved phonics, as did 37% of the activities in Classroom 2. None of the classrooms used "phonics" readers. The form of the phonics instruction involved reading teacher-made charts and poems and the extensive use of word and picture sorts. There were some differences between Classrooms 2 and 4 in the phonics instruction, again as described in more detail above. These differences were: (a) Although both teachers made use of onsets and rimes, Teacher 4 more frequently broke the rime unit into individual letter-sounds whereas Teacher 2 treated a key rime in a word as a source for analogies to other words; (b) the phonics curriculum was more preset in Classroom 4 than in Classroom 2; and (c) phonics instruction stayed at about the same level in Classroom 2 throughout the year, whereas phonics instruction ceased in Classroom 4 by the end of February.

Table 13: A Comparison of Percent Activities Across Classrooms

SEPTEMBER THROUGH DECEMBER												
READING GROUP	LOW				MIDDLE				HIGH			
Class	1	2	3	4	1	2	3	4	1	2	3	4
Reading and writing text	55%	46%	52%	17%	47%	43%	44%	26%	47%	50%	58%	50%
Phonics and phonemic awareness	3%	37%	6%	50%	3%	36%	10%	44%	3%	30%	0	16%
Word wall and spelling	37%	9%	24%	11%	32%	9%	6%	11%	33%	10%	14%	18%
Vocabulary and text discussion	0	4%	6%	0	6%	0	17%	0	5%	0	7%	8%
JANUARY THROUGH MAY												
READING GROUP	LOW				MIDDLE				HIGH			
Class	1	2	3	4	1	2	3	4	1	2	3	4
Reading and writing text	44%	39%	45%	25%	37%	57%	53%	21%	41%	66%	43%	35%
Phonics and phonemic awareness	4%	38%	17%	16%	10%	19%	6%	10%	0	9%	9%	10%
Word wall and spelling	37%	15%	8%	4%	32%	6%	6%	5%	33%	8%	6%	5%
Vocabulary and text discussion	0	0	16%	34%	6%	12%	19%	32%	5%	13%	24%	30%

Teachers in Classrooms 1 and 3 relied on a class word wall and spelling activities to foster word recognition more than they did direct phonics instruction (Table 13). Word wall and spelling activities in these two classrooms emphasized the visual letter strings of words. It should be noted that spelling differs from "writing for sounds"—the latter of which is considered a phonics activity. This is because the emphasis in spelling is on memorizing correct spellings, whereas "writing for sounds" emphasizes translating sounds into letters (see Appendix).

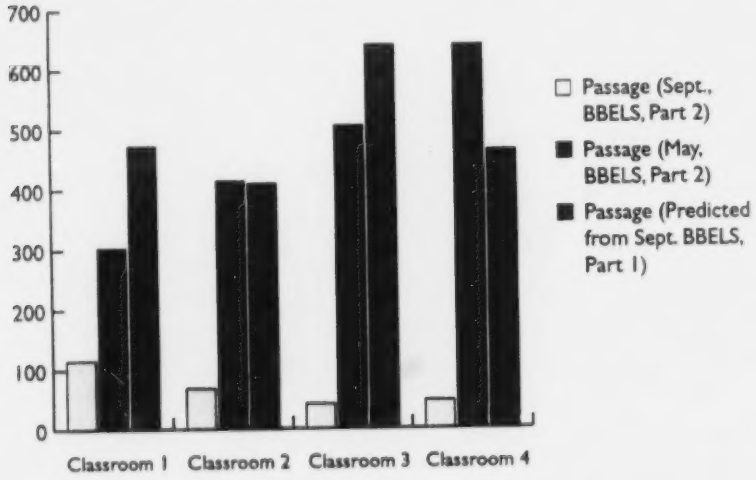
There was relatively little development of oral vocabulary or discussion of the meaning of texts from September through December, except in the middle reading group in Classroom 3 (Table 13). There was a marked increase in discussion of vocabulary and text after December, especially in Classrooms 3 and 4 (Table 13). During this second semester, the percent of language arts activities devoted to vocabulary and text discussion ranged from a low of none in the low groups in Classrooms 1 and 2 to 16% in the low reading group in Classroom 3 and 34% in the low reading group in Classroom 4.

The Impact of Instruction on Reading Measures

Overall reading differences for the four classrooms

The differences in instructional practices among the four classrooms appeared related to growth in reading skill. Despite a lack of significant difference on BBELS or the WRAT in September, an analysis of covariance (ANCOVA) conducted between children in the four different first-grade classrooms at the end of the year revealed significant differences in reading skill. Children's end-of-the-year BBELS assessment (Part 2) passage reading scores, using scores on Part 1 in September as a covariate, indicated a statistically significant difference in reading growth among children from the four classrooms ($F\ 3,50 = 6.69$, $p < .001$; Figure 1). Follow-up pairwise contrasts were conducted using a Bonferroni adjustment to control for Type I errors. These comparisons revealed consistent differences among all the classrooms, which can be summarized succinctly by the ranking $4 > 3 > 2 > 1$. Overall means on the passage reading showed that, in May of first grade, children in Classroom 4 were reading on a late-second-grade level; children in Classroom 3 were reading on a mid-second-grade level; children in Classroom 2 were reading at an end-of-first-grade level; and children in Classroom 1 were reading at a primer level.

Figure 1: Mean passage reading.



Children in Classrooms 3 and 4 exceeded predictions based on BBELS, Part 1. Classroom 2 lived up to what was predicted. Classroom 1 fell below prediction (see Figure 1, Mean Passage Reading). So, in three of the four classrooms, the mean reading level was at least an end-of-first grade level—a level that would make many parents, teachers, and administrators happy.

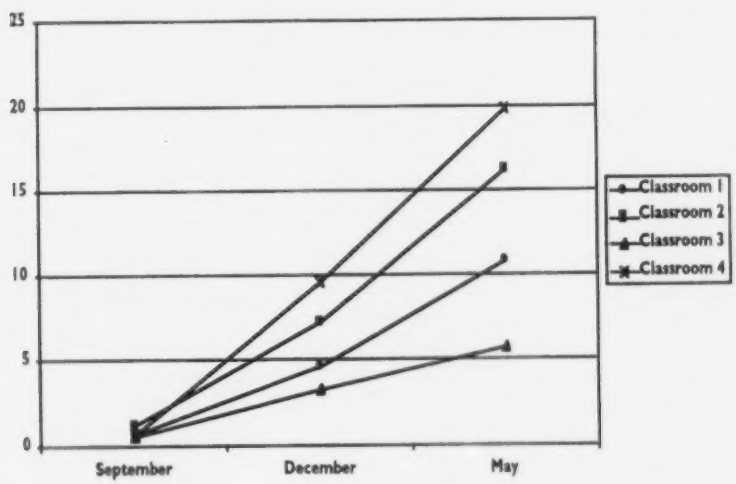
Table 14: Percentile Means and Standard Deviations for Low Reading Groups on Passages

		Classroom 1	Classroom 2	Classroom 3	Classroom 4
December					
PP1:	Mean	55.5	83.5	7.6	77.3
	SD	32.9	14.9	16.9	10.2
May					
PP3:	Mean	92.9	100.0	91.8	100.0
	SD	10.6	.0	7.1	.0
Primer:	Mean	83.0	87.5	80.7	94.0
	SD	11.1	16.7	17.1	3.5
End First:	Mean	N/A	86.7	N/A	91.3
	SD		12.7		5.8

An "ability" group by classroom type of interaction

There was a surprising "interaction," however. Children in the low reading group in Classroom 3 were relatively poor readers at the end of first grade (Table 14; Figure 2). On the other hand, children in the middle or high group of Classroom 3, who entered with "middle" range "readiness" skills (e.g., alphabet knowledge, phonemic awareness), were likely to make exceptional growth in reading during the year. In fact, nine children who entered Classroom 3 with literacy skills in the middle range exited with reading skill one standard deviation above the mean. This "interaction" can be observed by comparing Figure 2 (Growth on WRAT in Low Reading Groups) to Figure 3 (Growth on WRAT in Middle Reading Groups) and Figure 4 (Growth on WRAT in High Reading Groups).

Figure 2: Growth on WRAT in low reading groups.

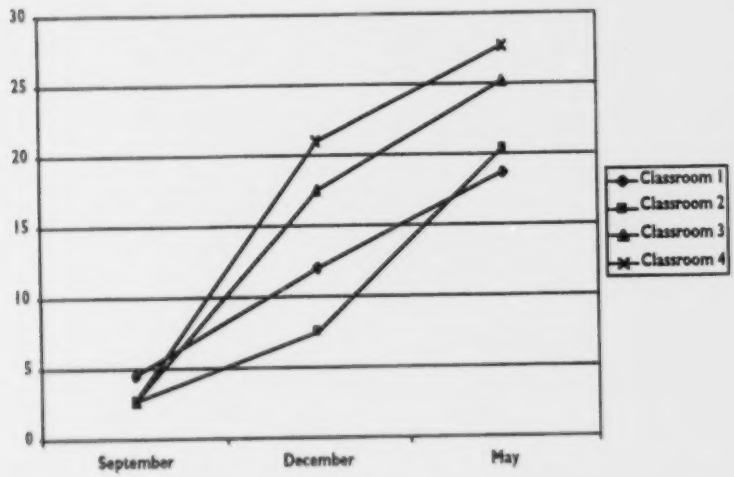


Children in the low groups in the four classrooms did not differ significantly from each other on any of the BBELS subtests or on the WRAT in September (Figure 2). Of these low group children, only those in Classrooms 2 and 4 were reading near grade level at the end of first grade (Table 14; Figure 2).

Classroom 4 was the only classroom in which almost all the low group children were reading at an end-of-first-grade level in May, with a mean score of 91.3% word recognition on end-of-year first grade passages (Table 14). The very poor development in word recognition of low group children in Classroom 3 was evident as early as December. In December, these children could barely read at all, with a mean score of 7.6% on a first level preprimer passage (this is a level of book normally read well before December in first grade).

Table 14 reports the means and standard deviations for words correctly read during oral reading of graded passages on BBELS Part 2. We did measure comprehension of these passages, but comprehension was limited by the children's ability to read the words in the passages. That is, children could not comprehend passages in which they failed to identify many words. At the first-grade level, reading comprehension is ruled by word recognition ability (Juel, Griffith, & Gough, 1986). This may explain the relative lack of text discussion and oral vocabulary development in the classrooms. That is, children will score better on assessments at the end of first grade if they have strong word recognition skills. We were concerned that the apparent short shift given vocabulary and word knowledge developed in text discussion could have a negative impact on reading comprehension in subsequent grade levels. However, in the two most successful classrooms, Classrooms 3 and 4, the trends toward increased vocabulary and text discussion after December were encouraging.

Figure 3: Growth on WRAT in middle reading groups.



Performance of children on reading words they had been taught

In terms of being able to read what they had specifically been taught in their reading groups, all children in Classroom 4 did well, with an especially impressive performance by the low-group children. Recall that we had asked the children to read five "sight" words (usually word wall words) and five "decodable" words (ones whose spelling patterns had received attention). In Classroom 4, the children had mean scores between 3.8 and 4.5 on both

sight and decodable words in December and May (Table 15). In contrast, low group children in Classroom 3 did quite poorly in December on these words, with means of only 1.2 on both word types and with means no higher than 3.2 on either measure in May. Other notable patterns included those found for the children in Classroom 1. In this classroom the low group children had difficulty reading the words, and by the end of the year the middle group children also had difficulty.

Strategies children used in word recognition

Table 16 shows the strategies (whether they were successful or not) that children in the low reading groups used as they read both decodable and sight words on the word lists and in the short stories. As previously described, a think-aloud procedure was used. Children in the low groups, whose word recognition was less automatic than children in the higher reading groups, were best able to describe how they went about trying to identify a word.

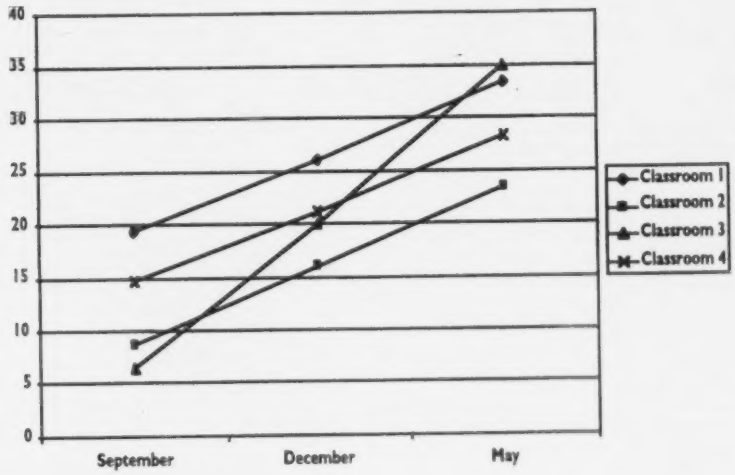
Table 15: Means and Standard Deviations for Low Reading Groups on Words Taught to That Group

	Classroom 1	Classroom 2	Classroom 3	Classroom 4
December				
Decodable				
Mean	2.5	3.5	1.2	4.5
SD	1.9	1.9	1.3	1.0
Sight				
Mean	1.7	3.5	1.2	3.8
SD	1.8	1.7	.8	1.0
May				
Decodable				
Mean	2.1	3.8	2.6	4.0
SD	2.0	1.9	1.8	1.2
Sight				
Mean	3.0	3.8	3.2	4.0
SD	1.9	1.9	.8	.0

There are two primary findings from this strategy analysis. First, the strategies children tried to apply did reflect the strategies (or lack of such) that they were taught—with one notable exception that will be discussed. Children in Classroom 1 were not taught strategies: The emphasis was on the visual array of letters, memorizing word spellings, and learning words on the word wall. They were not taught orthographic spelling patterns. Their strategies in December reflect this "visual" orientation; decodable and sight words are approached in the same fashion. Likewise, children in Classroom 3 mainly applied visual strategies throughout the year. Reflecting their instruction, children in Classroom 4 attempted to sound and blend the sequential phonemes represented by letters more than children in the other classrooms.

The second interesting finding reflects the notable exception mentioned above. Children in the low groups had great difficulty seeing the "chunks" in words. Despite the heavy dose of onset and rime instruction in Classroom 3, for example, the low group children did not recognize many of the rimes to which they had been exposed. Children who had difficulty with word recognition rarely seemed to "chunk" words into onsets and rimes or even find

Figure 4: Growth on WRAT in high reading groups.



the "little word in the big word" (strategies more regularly employed by the better readers). In short, poor readers did not seem to see the patterns in words. By the end of the year, poor readers frequently tried to "sound and blend" by phoneme; but, except in Classroom 4 where they received the most practice in the strategy, they were not very successful at it. From this data, it appears that the major strategy of use to children who enter first grade with few reading skills is sounding and blending phonemes. However, it also appears that they cannot use this strategy successfully without considerable instruction, as was provided in Classroom 4.

Table 16: Percent Strategies Tried as Indicated in "Think Alouds" by Low Reading Groups

	Classroom 1		Classroom 2		Classroom 3		Classroom 4	
December								
Decodable	Visual Spell Word wall	50% 17% 33%	S&B phonemes S&B onset/rime "Had before" First letter + sense	25% 25% 25% 25%	S&B phonemes Visual Spell	20% 60% 20%	Meaning S&B phonemes Visual	25% 50% 25%
Sight	Visual Spell Word wall	50% 17% 33%	Word wall	100%	Visual S&B onset/rime Meaning	60% 20% 20%	S&B phonemes Spell Word wall	25% 50% 25%
May								
Decodable	S&B phonemes S&B onset/rime Visual Phonic statement Word wall	14% 14% 29% 14% 29%	First letter + sense Word wall Just knew (fast)	50% 25% 25%	S&B phonemes S&B onset/rime Visual	20% 20% 60%	S&B phonemes Visual Phonic statement	50% 25% 25%
Sight	Visual Word wall	29% 71%	First letter + sense Word wall Just knew (fast) Visual	20% 40% 20% 20%	S&B phonemes Visual	20% 80%	Visual Phonic statement	75% 25%

Peer coaching in Classroom 3 seemed ineffective for children who entered first grade with minimal reading skill. Overall, as noted before, these children had poor word recognition. Despite comparatively little direct instruction in phonics, they still tried to sound and blend letter-sounds and onsets and rimes, but they were quite unsuccessful at it. They were not even able to read most of the words which had been the focus of some attention in their reading groups (Table 15). It appears that the assistance provided to struggling readers by equally poor readers is unhelpful and misleading, and we hypothesize that it may damage the self-image of both. Peer coaching seemed to be more effective with children who entered first grade with some reading skill, suggesting that there is a threshold level of competence required before students can benefit from the metacognitive stance this approach seems to involve.

Compared to the poor readers, average and above-average first-grade readers frequently chunked words into patterns. At the end of first grade, the two major word identification problems of most middle- and high-group children were: (a) vowel patterns other than long and short vowels; and (b) separating words into syllables. These are the decoding problems, however, of children who are "on-track," or even advanced, in terms of their reading acquisition.

Discussion

Before we venture into a discussion, we want to be clear on the limitations of this study. Although we believe the findings raise provocative questions, and that this type of in-depth analysis is extremely useful, limitations still exist.

Limitations of the Current Study

This was not an experimental study and it only involved four classrooms. The findings are provocative, but need follow-up. In subsequent discussion of "ability" based reading groups and differentiated instruction, for example, we urge caution. We did not have controlled conditions with classrooms without reading groups. We further followed these children for only one school year. We do not know whether first-grade reading placements will haunt these children, as suggested in prior research. We do not know if the time spent on word recognition in first grade, and the relatively little time spent on vocabulary development and in discussions of text that would foster world knowledge, is ultimately a good ratio. That is, we don't have a control group where a lot of emphasis was placed on these latter activities; nor are we following these children into the next grade levels.

Of course, issues raised in the current study have captured our attention. We are currently conducting a longitudinal study of a much larger number of classrooms. In that study, we are following the children from preschool through third grade. We remain convinced, however, that microlevel interac-

tions within each classroom are worth capturing. We know we have learned a lot with this intermediate level view—a view that is neither set on wide frame, nor is it so sharply focused it loses the background. So with the above limitations strongly evoked, we want to consider what we believe are the most important findings that should be further explored in future research.

Differential Instruction May Be Helpful in First Grade

One of the most provocative findings from this study is the indication that differential instruction may be helpful in first grade. All the teachers used homogenous reading groups. The more time incoming students with comparatively fewer early literacy skills spent in these groups—as opposed to whole-class instruction—the better they did. Further, the two classrooms that were most successful in getting them off to a good start in first grade had the most differentiated word recognition instruction. That is, word recogntion in the low reading group was different from that in the higher groups. In fact, the classroom (Classroom 4) that had the very highest success both overall and with the low group had considerably different instruction across the groups. As compared to the other low groups, and to the other reading groups within this classroom, the focus of the low group was squarely on phonics—but only through February.

We have a well-deserved history in our field of concern over reading group placements becoming permanent—that is, once in the low group always in the low group (Barr & Dreeben, 1983; Juel, 1990). Further, differential treatment by teachers of high and low reading groups has not always been considered favorable to the low reading group children. There is evidence of differential treatment by teachers of high and low reading groups in praise-giving, number of higher order questions asked, responses to reading errors, and time spent reading texts (Allington, 1980, 1984; Au, 1980; Collins, 1982; Gambrell, 1984; Hiebert, 1983; Hoffman & Baker, 1981; Pflaum, Pascarella, Boswick, & Auer, 1980). Differential treatment, however, has sometimes not been found (Weinstein, 1976), or has even been interpreted as being appropriate because children who have fewer literacy skills require different types of responses to their errors and instruction than children with more advanced skill in word recognition (West & Anderson, 1976).

At least two interesting questions emerge from the current study about homogeneous first-grade reading groups:

1. Are low group children in first grade who are grade level readers as they enter second grade automatically placed in low reading groups there? Will, for example, the low group children in Classroom 4—who were grade level readers at the end of the year—be assigned to low groups with children who did not learn to read as well in first grade (such as the low groups in Classrooms 1 and 3)? Indeed, past research would suggest they will be; they will not be reshuffled. If this is the case, it might well wipe out the gains they achieved in first grade.

2. Are "ability" based reading groups needed in other grade levels? That is, is there less of a need for placing children in reading groups as they

become swift at word recognition? Are reading groups more of a first-grade concern than they are at either earlier or later grade levels?

Phonics is Critical for Some Children but May Not Be Helpful for Others

Certainly the finding from the current study that appeared the most clear-cut (but still subject to the limitations discussed above) was that children who entered first grade with few literacy skills benefited from a heavy dose of phonics. However, children who possessed middle-range literacy skills on entering first grade benefited from a classroom with more trade book reading and time for writing text. The apparent "ability by treatment interaction" was that children who entered first grade with some reading ability did exceptionally well in a classroom that included a less structured phonics curriculum and more reading of trade books and writing of text (Classroom 3; Figures 3 & 4), whereas children who entered with fewer literacy skills benefited from a curriculum with an early word-level focus. Yet—and this needs to be underscored—with a successful early and strong dose of effective phonics and a rapid rise in word-level skill, these "low" group children then benefited from the same type of increased vocabulary and text discussions, and reading from a variety of types of materials, as did their peers.

By far the most successful classroom for "low" group children was characterized by phonics first and fast (see Anderson, Hiebert, Scott, & Wilkinson, 1985 for a similar recommendation). The teacher in this successful classroom provided a heavy dose of phonics at the beginning of the year for the "low" group and then moved onto other activities, namely vocabulary and comprehension, by February. In fact, she may have exceeded the phonics first and fast recommendation in terms of upfront quantity and its effectiveness–as well as the swiftness with which phonics ceased being needed.

The Form of Phonics Matters and May Encompass Activities Not Traditionally Considered Phonics

Of course, the form of phonics instruction mattered. A structured phonics curriculum that included both onsets/rimes and the sound and blending of phonemes within the rimes seemed very effective. There are two very critical points in the above statement. First, the rime unit had to be further analyzed into its component letter-phoneme correspondences, especially for children who entered first grade with little knowledge of letter sounds. This finding is in line with the research findings of Bruck and Treiman, 1992; Ehri and Robbins 1992; Gaskins et al., 1996/1997; and Vandervelden and Siegel, 1995, that using analogies to rimes in key words is not an effective instructional strategy until children have a good grasp of consonant and vowel sounds. Second, it wasn't an either/or phenomena of onsets and rime versus sequential letter-sound decoding. The extremely effective teacher in Classroom 4 did both simultaneously. Yet, her poorest readers were especially dependent on the sequential sounding and blending of letter-sounds that this teacher modeled for them. We believe that knowledge of rimes may be exactly what ultimately helps children chunk and decode unknown words,

but that children do not naturally chunk words into these units until they have been able to independently read enough text to respond fairly automatically to rime patterns.

The teacher in Classroom 4 often emphasized phonograms during phonics instruction involving word sorts; but in "writing for sounds" (see Appendix) the emphasis was on the sequential letter/phonemes in a word. We hypothesize that it is during writing that the relationship between individual letters and phonemes might be the most vivid. That is, a child with pencil in hand as she sounds the phonemes in her mouth and attempts to represent these sounds with letters on paper is likely to reach down to the phoneme level. The literature on invented spelling is certainly supportive of this notion (Henderson, 1981). Notice, however, that Teacher 4 did press for correct spellings. That is, she employed what was taught in phonograms in her word recognition instruction and emphasized the vowel in writing, which appeared to be a winning combination.

The phonics instruction in the two most successful classrooms for "low" reading group students was very "hands-on" and included "writing for sounds." The "hands-on" phonics and phonemic awareness activities frequently involved sorting word cards into columns based on orthographic patterns and sorting picture cards in terms of the onset, rime, or medial vowel sounds. These activities focus children's attention as they either sort the pictures or word cards themselves or respond to where the teacher should place them on a pocket chart. Thus, active decision making and thought is required to compare and contrast sounds and spelling patterns in word sorting activities (Bear, Invernizzi, Templeton, & Johnston, 1995).

Children who entered first grade with minimal reading skill seemed to have greatest success with the following classroom practices:

1. Teachers modeled word recognition strategies by (a) chunking words into component units such as syllables, onset/rimes, or finding little words in big ones, as well as modeling and encouraging the sound and blending of individual letter/phonemes in these chunks; and (b) considering known letter-sounds in a word and what makes sense;
2. Children were encouraged to finger point to words as text was read;
3. Children used hands-on materials (e.g., pocket charts for active sorting of picture cards by sound and word cards by orthographic pattern);
4. "Writing for sounds" was part of phonics instruction; and
5. Instruction groups were small with word recognition lesson plans designed to meet the specific needs of children within that group.

Final thoughts

The current study suggests that the "self-teaching" hypothesis works for children with some early literacy skills (Share, 1995; Share & Stanovich, 1995; Torgesen & Hecht, 1996). However, some upfront teaching is required regarding how to approach unknown words before self-teaching can mani-

fest itself in children who have few literacy skills on entering first grade. In other words, the development of phonological sensitivity and lots of reading experience is not sufficient for some children. Rather, phonics instruction on onsets, rimes (including short and long vowel rimes), and short vowels—coupled with modeling how to approach unknown words—might be enough to set these children into a "self-teaching" mode, provided they subsequently have sufficient text to read.

We found that our teachers' instruction did not neatly fall into any easily definable method, strategy, or "unit" approach to word recognition. Yes, the two most successful teachers with children who entered first grade with few literacy skills could be classified as phonics teachers. However, as described above, this phonics instruction combined reading and writing of words and, in the most successful classroom, combined an onset/rime approach with sequential letter-sound decoding. Further, the phonics instruction reflected knowledge of both the "hands-on" nature of activities that focus the attention of young children, and the active-child decision making involved in compare and contrast activities that can facilitate cognitive growth. All of our teachers showed enormous energy in creating materials which were suitable for their children. We thus concur with the statement of Duffy and Hoffman (1999) that "Improved reading is linked to teachers who use methods thoughtfully, not methods alone" (p. 15). Teachers need, however, to be knowledgeable about what methods are effective and for what children, and the term *methods* has to take on a richer meaning.

References

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print.* Cambridge, MA: MIT Press.

Adams, M. J., Bereiter, C., Hirshberg, J., Anderson, V., & Bernier, S. A. (1995). *Framework for effective teaching, grade 1: Thinking and learning about print, teacher's guide, Part A.* Chicago: Open Court.

Allington, R. L. (1980). Teacher interruption behaviors during primary-grade oral reading. *Journal of Educational Psychology, 72,* 371-377.

Allington, R. L. (1984). Content coverage and contextual reading in reading groups. *Journal of Reading Behavior, 16,* 85-96.

Anderson, R. C., Hiebert, E. H., Scott, J. A., & Wilkinson, I. A. (1985). *Becoming a nation of readers.* Washington, DC: National Institute of Education.

Au, K. H. (1980). A test of the social organizational hypothesis: Relationships between participation structures and learning to read. Unpublished doctoral dissertation, University of Illinois, Champaign-Urbana.

Barr, R., & Dreeben, R. (1983). *How schools work.* Chicago: University of Chicago Press.

Bear, D., Invernizzi, M., Templeton, S., & Johnston, F. (1995). *Words their way: A developmental approach to phonics, spelling, and vocabulary instruction.* Columbus, OH: Merrill/Macmillan.

Bruck, M., & Treiman, R. (1992). Learning to pronounce words: The limitations of analogies. *Reading Research Quarterly, 27,* 375-388.

Carroll, J. B., Davies, P., & Richman, B. (1971). *Word frequency book.* New York: American Heritage.

Clay, M. M. (1989). *The early detection of reading difficulties* (3rd ed.). Hong Kong: Heinemann.

Clymer, T. (1963/1996). The utility of phonic generalizations in the primary grades. *The Reading Teacher, 50,* 182-187.

Collins, J. (1982). *Differential treatment in reading groups. Final report of school-home ethnography project* (Report No. G-78-0082). Washington, DC: National Institute of Education.

Dahl, K. L., Scharer, P. L., Lawson, L. L., & Grogan, P. R. (1999). Phonics instruction and student achievement in whole language first-grade classrooms. *Reading Research Quarterly, 34,* 312-341.

Duffy, G. G., & Hoffman, J. V. (1999). In pursuit of an illusion: The flawed search for a perfect method. *The Reading Teacher, 53,* 10-16.

Ehri, L. C., & Robbins, C. (1992). Beginners need some decoding skill to read words by analogy. *Reading Research Quarterly, 27,* 13-26.

Foorman, B., Francis, D. J., Fletcher, J. M., Schatschneider, C., Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. *Journal of Educational Psychology, 90,* 37-55.

Gambrell, L. (1984). How much time do children spend reading during teacher-directed reading instruction? In J. Niles & L. Harris (Eds.), *Changing perspectives on research in reading/language processing and instruction* (pp. 193-198). Thirty-third yearbook of the National Reading Conference. New York: National Reading Conference.

Gaskins, I. W., Downer, M., Anderson, R. C., Cunningham, P. M., Gaskins, R. W., Schommer, J., & the Teachers of Benchmark School. (1988). A metacognitive approach to phonics: Using what you know to decode what you don't know. *Remedial and Special Education, 9,* 36-41, 66.

Gaskins, I. W., Ehri, L. C., Cress, C., O'Hara, C., & Donnelly, K. (1996/1997). Procedures for word learning: Making discoveries about words. *The Reading Teacher, 50,* 312-327.

Gough, P. B., & Juel, C. (1990. April). *Does phonics teach the cipher?* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Gough, P. B., Juel, C., & Griffith, P. L. (1992). Reading, spelling, and the orthographic cipher. In P. B. Gough, L. C. Ehri, & R. Treiman (Eds.), *Reading acquisition* (pp. 35-48). Hillsdale, NJ: Erlabaum.

Goswami, U. (1995). Phonological development and reading by analogy: What is analogy and what is not? *Journal of Research in Reading,* 18, 139-145.

Goswami, U., & Bryant, P. (1992). Rhyme, analogy, and children's reading. In P. B. Gough, L. C. Ehri, & R. Treiman (Eds.), *Reading acquisition* (pp. 49-63). Hillsdale, NJ: Erlbaum.

Goswami, U., & Mead, F. (1992). Onset and rime awareness and analogies in reading. *Reading Research Quarterly, 27,* 153-162.

Henderson, E. H. (1981). *Learning to read and spell: The child's knowledge of words.* DeKalb: Northern Illinois University Press.

Hiebert, E. H. (1983). An examination of ability grouping for reading instruction. *Reading Research Quarterly, 18,* 231-255.

Hoffman, J. V., & Baker, C. (1981). Characterizing teacher feedback to student miscues during oral reading instruction. *The Reading Teacher, 34,* 907-913.

Hutchins, P. (1968). *Rosie's walk.* New York: Macmillan.

Johnston, F. R., Invernizzi, M., & Juel, C. (1998). *Guidelines for volunteer tutors of emergent and early readers.* New York: Guilford Press.

Juel, C. (1990). Effects fo reading group assignment on reading development in first and second grade. *Journal of Reading Behavior, 22,* 233-254.

Juel, C. (1994). *Learning to read and write in one elementary school.* New York: Springer-Verlag.

Juel, C., Griffith, P., & Gough, P. B. (1986). Acquisition of literacy: A longitudinal study of children in first and second grade. *Journal of Educational Psychology, 78,* 243-255.

Liberman, I. Y., & Shankweiler, D. (1985). Phonology and the problems of learning to read and write. *Remedial and Special Education, 6,* 8-17.

Perfetti, C. A., Beck, I., Bell, L., & Hughes, C. (1987). Phonemic knowledge and and learning to read are reciprocal: A longitudinal study of first grade children. *Merrill-Palmer Quarterly, 33,* 283-319.

Pinker, S. (1994). *The language instinct.* New York: HarperPerennial.

Pflaum, S. W., Pascarella, E. T., Boswick, M., & Auer, C. (1980). The influence of pupil behavior and pupil status factors on teacher behaviors during oral reading lessons. *Journal of Educational Psychology, 74,* 99-105.

Reitsma, P. (1990). Development of orthographic knowledge. In P. Reitsma & L. Verhoeven (Eds.), *Acquisition of reading in Dutch* (pp. 43-64). Dordrecht: Foris.

Share, D. L. (1995). Phonological recoding and self-teaching: Sine qua non of reading acquistion. *Cognition, 55,* 151-218.

Share, D. L., & Stanovich, K. E. (1995). Cognitive processes in early reading development: Accommodating individual differences into a model of acquisition. *Issues in Education, 1,* 1-57.

Stahl, S. A. (1992). Saying the "p" word: Nine guidelines for exemplary phonics instruction. *The Reading Teacher, 45,* 618-625.

Torgesen, J. K., & Davis, C. (1996). Individual difference variables that predict response to training in phonological awareness. *Journal of Experimental Child Psychology, 63,* 1-21.

Torgesen, J. K., & Hecht, S. A. (1996). Preventing and remediating reading disabilities: Instructional variables that make a difference for special students. In M. F. Graves, P. van den Broek, & B. M. Taylor (Eds.), *The first R: Every child's right to read.* New York: Teachers College Press.

Treiman, R. (1992). The role of intrasyllabic units in learning to read and spell. In P. B. Gough, L. C. Ehri, & R. Treiman (Eds.), *Reading acquisition* (pp. 65-106). Hillsdale, NJ: Lawrence Erlbaum Associates.

Vandervelden, M. C., & Siegel, L. S. (1995). Phonological recoding and phoneme awareness in early literacy: A developmental approach. *Reading Research Quarterly, 30,* 854-875.

Weinstein, R. S. (1976). Reading group membership in first grade: Teacher behaviors and pupil experiences over time. *Journal of Educational Psychology, 68,* 103-116.

West, C. K., & Anderson, T. H. (1976). The question of preponderant causation in teacher expectancy research. *Review of Educational Research, 68*, 103-116.

Wilkinson, G. S. (1994). *WRAT*. Wilmington, DE: Wide Range, Inc.

Wylie, R. E., & Durrell, D. D. (1970). Teaching vowels through phonograms. *Elementary English, 47*, 787-791.

Appendix

Classroom 1, Low Reading Group, November 5

The teacher is going over the new word wall words for the week. They are: come, are, put, with. *The routine is to clap, spell, and chant each word five times. Sometimes an individual child is called upon; most times all children do this in unison.*

T:	Let's start with the word "are." S1, spell it for us.
S1:	A,R,E
T:	Everyone
All:	ARE,ARE,ARE,ARE,ARE

This pattern is repeated with each word.

T:	Write each word three times and make a sentence using "are."

Primary Materials: Word wall
Primary Activities: Spell words, word wall sight words, individual text writing
Primary Units: Whole word
Primary Strategies: Spell

Classroom 2, Low Reading Group, October 21

The children first read a poem on a chart. Then they are given an individual copy of the poem. A refrain in the poem is:

We're scary skeletons
We're scary skeletons
Clickety-clack, down our boney backs

T:	*(to all)* Can anyone find "skeletons"?
S1:	Yes *(and points to three)*
T:	*(to S2)* Can you find a word that begins with "sc"? The "sc" is the same as /SK/ in "skeleton".
S2:	*Finds "scary" but doesn't know it.*
T:	It is another word for "spooky." It is "scary." "We're" has an apostrophe and that means it's a contraction. It's a short way to say we are. It sounds like "we're." What sound does "cl" make? *Goes on reading "clickety-clack" and asks,* "What do 'clack' and 'back' have in common?
S3:	Ack
T:	Yes, they both are the "ack" family. If I take out "cl" *(from "clack")* what is this part?"
S2:	Ack
T:	Now, if I put a "B" on this?
S4:	Back

They choral read the poem. Then teacher gives them an individual copy of poem. They read to themselves, and are reminded to point to each word. Then each child reads the

poem out loud. They are told to take poems home and practice.

A chart with a list of "ack" words is put up. The first letter is printed in a different color than "ack."

T: Let's look at the first word. It was in your poem.
S5: Bones
T: Look at the whole word
S5: Back
T: The next word is "pack." "Back" and "pack" rhyme. What's the next word?
S2: Sack
T: Tell me how you knew.
S2: They all have "ack."
T: Let's see who knows this one.
S6: Stack
T: *(to all)* What does the "ack" say?
All: "Ack"
T: What does the "st" say?
All: /st/
T: Let's put it together.
All: Stack
T: Look at beginning sounds and then add chunk. That's what good readers do. Let's read back through the list.

Primary Materials: Poem on chart, poem copied for child
Primary Activities: Choral reading, individual reading, phonics, grammar
Primary Units: Initial consonant, initial consonant blend, phonogram
Primary Strategies: Teacher models and helps segment word in chunks, child reminded of word family, child told word rhymes with ___, finger point to word

Classroom 3, Middle Reading Group, October 30

They are reading a new Halloween book. Peer coaching is used as they read it.

S1: Can we tell the word?
T: *(to S1)* That doesn't help. He needs a chance to stretch his brain.
S2: On Halloween you can be a... (looks at T) ghost?
T: What would have to be there for it to be "ghost"?
S2: A "g."
T: There's not a "g."
S2: *Says "an" and tries to sound it out.*
T: I liked the way you stretched it out. It does have the little word "an" in it. The word is "anything"—does that make sense?
S3: "Y" like in "Tracy."
S4: *(looking at upcoming word)* This is "pat."
T: "At" word family. *(Makes a "b" and a "p" with her hand to distinguish the letters.)* I know you know it but telling her

doesn't help. Is that word "bat" or "busy" or "balls"? How do you know?

S5: What do your parents do on Halloween?

T: That clue makes sense but it would be hard for her to remember by herself.

S6: Sounding word out

S5: There's an "an" in it.

T: *(to S6)* Sometimes that helps and sometimes not.

T: What other things can we do to help her?

S's: Sound it out. Look at the word wall. Go back and reread it. Skip it.

T: You guys are really working hard.

They continue to read. When S1 is stuck on the word "looks," he goes back and rereads the word and gets it.

T: *(to S1)* Good for you!

S3: I saw this word in one of the book nook books!

T: Good readers find words in other places, don't they? What do those two say? It rhymes with "books'?

S1: Looks!

T: Has everyone had a turn?

They choral read the rest of the book. T reminds them to sound like a bell, when they read "ding-dong". At the end of reading, everyone gets a Halloween stamp.

Primary Materials: Trade book
Primary Activities: Peer coaching, individual reading, choral reading
Primary Units: Initial consonant, phonogram, whole word
Primary Strategies: Child told word rhymes with ___, child reminded of word family, rereading, child asked if it makes sense

Classroom 4, Low Reading Group, October 30

The children all have phonics worksheets. They are writing names to go with pictures. The pictures depict "at" words.

T: *(to S1)* Where did you learn to write those letters?

S1: *(to himself as he writes)* Straight stick down

T: *(to S2)* What's the next picture? What do you hear at the beginning?
/p/ What letter goes with /p/?

T: *(to S3)* Don't be playing around, you'll get left behind. Watch me, here is a new way to make a letter. Keep up. We're ready to go. Sleep at home, not in my reading group.

T: *(to all)* Stretch it out. What's in the middle? *(She models sound and blending all phonemes.)*

T: *(to S4)* Trace over mine *(printing)*.

T: *(to all)* What word did we write? /k/-/a/-/t/?

T calls attention to individual phonemes and letters that match each. She then describes how to form those letters.

T: *(to S3)* What is the first sound?
S3: "c"
T: I don't want to hear the name of the letter, tell me the sound. *(They do a few more "at" words like "bat.")*
T: Good job here, guys. Writing is hard now but you'll get really good at it and speed up.

Primary Materials: Phonics worksheet
Primary Activities: Writing for sounds, letter formation
Primary Units: Initial consonant, short vowel, final consonant
Primary Strategies: Teacher models and helps sound and blend letter-sounds

About CIERA

The Center for the Improvement of Early Reading Achievement (CIERA) is the national center for research on early reading and represents a consortium of educators in five universities (University of Michigan, University of Virginia, and Michigan State University with University of Southern California and University of Minnesota), teacher educators, teachers, publishers of texts, tests, and technology, professional organizations, and schools and school districts across the United States. CIERA is supported under the Educational Research and Development Centers Program, PR/Award Number R305R70004, as administered by the Office of Educational Research and Improvement, U.S. Department of Education.

Mission. CIERA's mission is to improve the reading achievement of America's children by generating and disseminating theoretical, empirical, and practical solutions to persistent problems in the learning and teaching of beginning reading.

CIERA Research Model

The model that underlies CIERA's efforts acknowledges many influences on children's reading acquisition. The multiple influences on children's early reading acquisition can be represented in three successive layers, each yielding an area of inquiry of the CIERA scope of work. These three areas of inquiry each present a set of persistent problems in the learning and teaching of beginning reading:

CIERA INQUIRY 1
Readers and Texts

Characteristics of readers and texts and their relationship to early reading achievement. What are the characteristics of readers and texts that have the greatest influence on early success in reading? How can children's existing knowledge and classroom environments enhance the factors that make for success?

CIERA INQUIRY 2
Home and School

Home and school effects on early reading achievment. How do the contexts of homes, communities, classrooms, and schools support high levels of reading achievement among primary-level children? How can these contexts be enhanced to ensure high levels of reading achievement for all children?

CIERA INQUIRY 3
Policy and Profession

Policy and professional effects on early reading achievement. How can new teachers be initiated into the profession and experienced teachers be provided with the knowledge and dispositions to teach young children to read well? How do policies at all levels support or detract from providing all children with access to high levels of reading instruction?

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